Southern Forestry Notes

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THE ODDS FOR A FIRE-DAMAGED PINE TO DIE

Guides for salvage cutting in fire-damaged pine stands have resulted from a joint study by the Louisiana Forestry Commission and the Alexandria Research Center. While the precise fate of individual trees cannot be foretold, some insight into the probable mortality has been gained.

A total of 624 trees in stands recently burned by wildfire were observed until they died or recovered. Nine stands were sawlog-sized loblolly and shortleaf pines; 1 was a dense 18-year-old stand of loblolly; and 1 was a 16-year-old slash pine plantation. Eight of the fires occurred in the fall of 1954, 3 in the early spring of 1955.

The proportion of live crown with needles scorched and the extent of cambium killed at the groundline proved to be better indicators of mortality than height of bark charring, length of live crown with needles consumed, presence of bark beetles, and amount of pitch bleeding. Neither the species, crown class, or diameter of the pines appeared to cause much difference in the outcome.

Cambium kill was explored by making chisel cuts on 4 quadrants of each tree. Few pines died if less than half of the crown was scorched, even though dead cambium occurred in every quadrant. When more than half of the crown was scorched and no live cambium was found in any quadrant the odds for death were 13 in 20. Trees on which

some live cambium could be found at groundline had 1 chance out of 20 to die if 51-75 percent of the crown was scorched, 1 chance in 10 for 76-90 percent scorch, and 1 chance in 3 if more than 90 percent of the crown had lost its needles.

A landowner marking a burned stand for salvage cutting can probably gage cambium kill by eye. The cambium is likely to be dead wherever the blackening extends to the bottom of the fissures. Where the bark is burned so badly that it is cupped out, the cambium is invariably dead.--Wm. F. Mann, Jr. (Southern Forest Experiment Station), and Erin R. Gunter (Louisiana Forestry Commission).

LOBLOLLY FOR THE ARKANSAS OZARKS?

Vigorous growth of loblolly pine near Jasper, Arkansas, indicates that this species may be suitable for growing in short rotations, even though it is not native.

One plantation, established on the Koen Experimental Forest in cooperation with TVA, tested seed collected in various parts of the South. After 10 years, total heights and diameters were uniform--heights ranged from 26 to 28 feet and diameters from 5.3 to 6.0 inches. Survival percentages varied considerably, however: northwest Georgia--96, southeast Tennessee--92, northeast Mississippi--75, northeast Alabama--75, east-central Mississippi--72, southwest Alabama--72, coastal plain of Virginia--65, Maryland--58. The coastal plains of North and South Carolina were also represented, but survival was less than 10 percent and growth was poor.

In a second study, loblolly from seed collected in eastern Tennessee averaged more than 24 feet tall and 4.7 inches d.b.h. after 10 years in plantations on typical old fields of the Arkansas Ozarks. Growth was best on deep loamy sands and progressively poorer on cherty silt loam ridge tops, silty clay loams, and cherty silt loam lower north slopes. Upper north slopes of cherty silt loams showed least height and survival, but even here heights exceeded 22 feet. Survival was best on loamy sands and silty clay loams, adequate on cherty silt loam ridges, and low on north slopes. The average for all sites was 67 percent. Shortleaf pine on these same sites averaged 5 feet less than loblolly in total

height and an inch less in diameter Virginia pine, which also is not native to the region, grew almost as well as loblolly.

In a third study, loblolly and shortleaf pines and a hybrid of these two species were planted on loamy sand. In 10 years, loblolly and the hybrid both averaged 23 feet tall and 5.7 inches in diameter. Shortleaf grew 22 feet high and 4.8 inches in diameter, but had the best survival

The success of these plantations indicates that loblolly may be a good species for planting in the Arkansas Ozarks, at least for a short-term crop. Losses from tip moth, drought, and ice have been small, to date. Large-scale conversion from shortleaf, however, should not be undertaken until more is known about loblolly's growth on other sites than those tested, its resistance to damage, and its growth over a longer period of time.--*W.R. Maple.*

ISO-OCTYL ESTER OF 2,4,5-T FOR HARDWOOD CONTROL

Injections of 40-pound solutions of the iso-octyl ester of 2,4,5-T killed 100 percent of treated hardwoods on the Sam Houston National Forest in Texas. The kill occurred within two years.

Concentrations of 40-, 20-, 13.3-, and 8-pound acid equivalent per hundred gallons (ahg) of diesel oil were applied with a Little Tree Injector to 60 sweetgums and 60 oaks ranging from 0.6 to 6.5 inches in d.b.h. Because it was desired to approximate field conditions, no special measures were taken to assure exactly uniform application of the silvicide.

The 40-pound solution killed 100 percent of both species, while the 20-pound killed 82 percent of the oaks and 50 percent of the sweetgums, none of which sprouted. In addition, 10 percent of the oaks and 4 percent of the sweetgums treated with the 20-pound solution were top-killed but developed sprouts.

Less expensive control might be obtained with less than a 40-pound concentration. Concentrations of 25, 30, and 35 ahg should be tested where sprout suppression on both species is desired. Where oak predominates or is the only species to be treated, 20 pounds ahg might be adequate.

Forty- and 20-pound solutions result when the ratios of standard concentrate (4 pounds per gallon) to diluent are 1 to 9 and 1 to 19.

The iso-octyl ester is currently available at lower prices than the previously tested propylene glycol butyl ether ester.--*Carter B. Gibbs.*

SOIL CRACKS IN SHARKEY CLAY CATCH RAINWATER

When dry, Sharkey clay (buckshot) soil absorbs large amounts of rain because big cracks form in the root zone. In wet weather, the soil swells and closes the cracks, and it is very slowly permeable as long as it remains in that condition.

Following approximately a month of dry weather in early November 1956, the Delta Experimental Forest received 3.8 inches of rain in about 24 hours. No runoff was observed, but on the next day a light rain, totalling a half-inch, produced surface flow. The absorptive ability was again demonstrated in 1959, when the last of June and the first half of July were without rain. Ten days of showers following this drought failed to cause runoff until about 4 inches had fallen.--*W.M. Broadfoot.*

RECENT PUBLICATIONS

*Ferguson, E.R. *Wood treated with penta can damage pine nursery seedlings.* Tree Planters' Notes 38, pp. 21-22.

*Grosenbaugh, L.R. *Should continuity dominate forest inventories?* Proceedings, Short Course in Continuous Inventory Control in Forest Management, Univ. of Georgia, pp. 74-83.

*Janssen, P.L., and Weiland, M.R. *Softwood distribution maps for the South.* Southern Forest Expt. Station Forest Survey Release 83, 12 pp.

*Shoulders, Eugene. *Caution needed in fall applications of nitrogen to nursery stock.* Tree Planters' Notes 38, pp. 25-27.

*Southern Forest Experiment Station. *Annual Report, 1959.* 77 pp.

*Thames, J.L., and Ursic, S.J. *Runoff as a function of moisture-storage capacity.* Journal of Geophysical Research, February 1960, pp. 651-654.

*Ursic, S.J., and Thames, J.L. *Effect of cover types and soils on runoff in northern Mississippi.* Journal of Geophysical Research, February 1960, pp. 663-667.

In Forests and People, First Quarter, 1960.

*Mann, W.F., Jr., and Gunter, E.R. *Predicting the fate of fire-damaged pines.* Pp. 26-27, 43.

*Peevy, F.A. *Soil application of chemicals for control of southern upland hardwoods.* Pp. 24-25, 37.

*Toole, E.R. *When to look for hardwood blight.* Pp. 14-15, 48.

In Proceedings, 1959 meeting of Society of American Foresters.

*Echols, R.M. *Effects of growing space on wood specific gravity in loblolly pine.* Pp. 140-143.

*Grosenbaugh, L.R. *Quantification and estimation in future forest management.* Pp. 117-121.

Mitchell, H.L., and Wheeler, P.R. *Specific gravity--a measure of intrinsic wood quality.* Pp. 53-57.

*Putnam, J.A. *Basic differences in grading hardwood and softwood sawtimber.* Pp. 57-62.

*Copies are available at the Southern Station.